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ABSTRACT

The introduction of the microcomputer is producing complex changes in the cosmopolitan culture of Californians, including the way people live and learn at home, in school, and at the office. Recently, many bills have been proposed in California to introduce computer science and technology into the public education system; in addition, tax credits are now given to some corporations who donate computers to schools, colleges, or universities. Offices of education frequently serve as catalysts for education and industry by hosting computer classes and conferences sponsored by computer companies. Silicon Valley is the heart of the computer industry, and consumers have a wide choice of hardware and software in this geographical region. Some teachers are rallying to the cause of computers in education in a non-profit organization called CUE (Computer Using Educators). In addition to its newsletter, CUE sponsors annual computer conferences; in 1982, this conference drew 23 computer enthusiasts. Even though one institution of higher learning, the Department of Defense's Foreign Language Center in Monterey, has few computers and guides inform visitors that there is considerable resistance to high technology in the military, the computerevolution is very much a part of education, industry, and home life in California. A number of specific computer uses in California school systems and the types of microcomputers being used are cited. (JB)

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COMPUTEREVOLUTION IN CALIFORNIA

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ABSTRACT

Computerevolution is the evolutionary change produced by the introduction of computer technology in homes, schools, and offices. This article summarizes the state of the art of computerized education in specific sites in California. Introduction of the microcomputer is producing complex changes in the cosmopolitan culture of Californians.

COMPUTEREVOLUTION IN CALIFORNIA

Computerevolution can be seen everywhere in California. Introduction of microcomputers is changing the way people live and learn at home, in school, and in the office. Computers are producing complex changes in the cosmopolitan culture of Californians. This article highlights the state of the art of computerized education in the state of California.

On September 29, 1982 the Governor of the State of California approved the Hart bill to provide $100,000 in statewide funds for the Institute of Computer Technology in Sunnyvale to "conduct a program of education and training in computer technology for pupils in kindergarten or in grades 1 to 12, inclusive, or for adults." According to Dr. Renato Nicolai, ICT Codirector, primary purpose of the Institute is "to meet the needs of industry to prepare students for job entry after high school and to prepare students for advanced courses in computer science on the college and university level." Approximately 1200 students of all ages are enrolled in computer classes at this time.

The Hart bill is one of many bills proposed in California recently to introduce computer science and technology in the public education system. The Imbrecht bill approved by the Governor on September, 1982 would give tax credit to corporations donating computers to schools, colleges, or universities. The assembly bill introduced by Assemblymen Katz and Naylor on February 22, 1983 would "authorize the educational technology local assistance program to award various types of grants for certain specified purposes to school districts, county offices of education, sponsors of regional occupational programs, public postsecondary educational institutions, individual teachers, and teacher education and computer centers meeting the eligibility criteria."

Legislators in California are sensitized to the need for computer literacy statewide. Legislation facilitates the authorization and funding of a variety of education and training programs in Teacher Education and Computer Centers to serve the needs of local communities.

In "TECC/8 TALK", April, 1983 the director of Region 8 Teacher Education and Computer Center, Shareen Young, comments on the TECC movement as "possibly the most important effort to improve education in many years." TECCs provide staff development activities with emphasis on the improvement of instruction. They assist with hardware and software evaluation, conduct computer classes, and promote industry and education collaboration. Region 8 TECC is headquartered in the Santa Clara County Office of Education, but it serves five counties: Monterey, San Benito, San Mateo, Santa Clara, and Santa Cruz.

Santa Clara County Office of Education has its own microcomputer center for educators. Apple, Atari, Commodore PET, and Radio Shack computers are available for teachers who want to evaluate the hardware, software, or peripherals.

Offices of Education frequently serve as catalysts for education and industry. Computer classes and conferences are often sponsored by computer companies at such sites.

In addition to Apple, Atari, Commodore PET, and Radio Shack already mentioned, popular computer companies in California include Control Data Corporation, Digital Equipment Corporation, IBM, Texas Instruments, Hewlett Packard, and Androbot, Inc. Silicon Valley is the heart of the computer industry, and nowhere in California is computerevolution more visible. Consumers have a wide choice of hardware and software in this geographical area.

In March, 1982 California State University Foundation announced it would offer educational products and services to institutions of higher learning. government agencies, and other nonprofit organizations. Purpose of the project was delivery of PLATO computer based education to update and upgrade basic skills. PLATO courseware was developed by Control Data Corporation, the computer company financing this venture to open a computer center network headquartered at California State University, Sacramento.

Computers are "beginning to blossom" on college campuses, according to Dr. W. Lloyd Johns, President of California State University, Sacramento, one of the few computer literate presidents in the California State University system. Dr. Johns' campus is blossoming with computers of all kinds to match needs of students and faculty. Computer science and TV technology are the two tools considered by the administration to offer the most promise for future course development. Computer courseware and telecourses save time energy, and money for faculty and students.

Control Data Corporation has invested over $900 million in its PLATO system which has been tested with over 25,000 students. It has a remarkable repertoire of comprehensive courseware to be studies at the CDC Applications Center in Sunnyvale, CA.

With a CDC PLATO terminal the home becomes school, office, and recreation center. PLAT can be used to take a course in computer literacy over the weekend, dispatch correspondence during the week, receive electronic mail instantaneously, and entertain family and friends with computer games.

One Control Data executive made the most of his home computer to teach his wife computer graphics. She became so proficient she became a computer graphicist for CDC.

Until recently CDC's hardware was considered relatively expensive, out of the reach of most consumers. PLATO courseware, therefore, was not well known for few could afford the hardware necessary to take CDC courses at home or in school.

Now a new market is opening with the announcement that CDC PLATO courses will be produced for ATARI 800, Apple II Plus, and Texas Instruments 99/4A microcomputers. Since Ataris, Apples, and TIs are plentiful in California homes and schools, a new supply of tested courseware in basic skills will be welcome.

In addition to its outlets in local discount and department stores Texas Instruments has two TI Learning Centers in the Silicon Valley, one in San Francisco and another in Santa Clara. TI centers offer seminars, hands-on workshops, mini-courses, and product demonstrations. Classes in TI LOGO and other popular CAI may be held in local schools, colleges, universities, and community centers.

ATARI computer games have proved popular in video game parlors across America. San Jose High School was the first to invest in its own video game room for educational purposes. According to Dr. Samuel Rodriguez, principal, the concession raises about $250 a week for the school. Since San Jose Unified School District recently declared bankruptcy, this source of funding seems welcome at this time.

Dr. Rodriguez feels computer science and technology should be taught in secondary schools because "curriculum is not meeting needs of students and therefore, we need to make changes." One of the changes will be a new series of computer literacy courses for San Jose students in September, 1983.

San Jose High School was one of fourteen California high schools chosen to receive ten Hewlett Packard personal computers worth approximately $51,000. Hewlett Packard representatives will train teachers to teach computer literacy with HP hardware.

Milpitas High School is also a recipient of a Hewlett Packard grant of computers, monitors, printers, and educational software. Principal Charles Perotti seems to be blessed twice. His school will receive a donation of computers from Digital Equipment Corporation as well as Hewlett Packard in the next few months. Perotti's priority at Milpitas is computer literacy.

Computer companies need distribution and software. For every dollar of hardware the average consumer spends four or five dollars on software and peripherals. Introducing computers in California schools and colleges can be a worthwhile investment for electronic industries.

Some high school districts are combining resources to meet needs for computerized education. Fremont Union High School District and Los Gatos Union High School District combined forces to form the Institute of Computer Technology in early 1982. Other consortiums and networks of computer enthusiasts are forming to meet mutual needs.

Computerevolution is seen at Independence High School in San Jose too. Don McKell, teacher at Independence, teaches computer programming to 150 students annually. One of McKell's classes was featured in the TV special, "Computing the Future", broadcast over 13 California PBS stations in November, 1982.

McKell voices concern about "lack of qualified teachers and hardware" to meet needs of students. He speaks for a multitude of faculty members frustrated by shortages of personnel and resources.

Some teachers are rallying to the cause of computers in education in a nonprofit organization called CUE (Computer Using Educators). Don McKell is a member of the executive board of CUE which has over 6,000 members. In addition to its news-

letter CUE sponsors annual computer conferences at Independence. The 1982 conference in October drew 2300 computer enthusiasts.

As spokesman for CUE Don McKell stresses importance for educators to "distinguish between computers manipulating students and students manipulating computers." McKell feels computer literacy is a necessity for all high school students, but advanced skills in computer programming are not for everyone.

Gary Gubitz of Hewlett Packard may disagree. Gubitz is coordinating the HP GIFT (Grant Investment in Future Technology) Program. According to coordinator Gubitz HP has a "commitment to student success" and "computer supremacy". Philosophically and pragmatically, HP and other computer companies are forming partnerships with schools for mutual benefit.

California college libraries are also discovering how useful a COM Catalog can be for students doing research. According to Janice Peyton, reference librarian at Evergreen Valley College, a computerized catalog system saves time and energy "to provide access to information instantaneously." Librarians in public libraries and universities have discovered the computer has an infinite variety of uses to get data instantly.

Robots are the newest megatrend in California computerevolution. The lovable TOPO robot is a brainchild of Androbot, Inc. in Sunnyvale, CA. Bill La of Androbot says, "TOPO lovers come in assorted ages." TOPOS are popular for education and entertainment. "TOPO is the incarnation of the turtle," comments La, and "The turtle is an object that draws patterns on the screen." You can play with TOPO and learn turtle graphics, computer literacy, or LOGO.

Cupertino Union School District is one of the few elementary school districts to have a computerized curriculum. At Stevens

Creek School in Cupertino principal Harvey Barnett is enthusiastic about androbots in computerized instruction. For K- 6 graders Barnett feels the computer is valuable to make the transition from concrete to abstract concepts. In Cupertino computers are integrated into math, science, English. and other disciplines.

In some institutions of higher learning computers are not seen or heard. At the Department of Defense's Foreign Language Center in Monterey. CA a microcomputer is hard to locate. The Defense Language Institute trains approximately 5,000 students a year at DLI, but it has no computerized curriculum. According to Colonel Robert Mellody, Assistant Commandant, the Defense Language Institute lacks funds to provide CAI for the Department of Defense personnel trained at the Foreign Language Center.

A guided tour of the Educational Technology Division of Training Development at DLI will reveal one Texas Instruments computer demonstrator and one videocassette tape recorder, no students whatsoever. The assigned guide gives demonstrations of this hardware to visiting dignitaries. Guides inform visitors that there is considerable resistance to high technology in the military. Computer literacy for students does not seem to have high priority with the Department of Defense.

Nevertheless, computerevolution is historically a fact in a vast variety of California institutions. This article spotlighted some of the computerevolutionaries who are introducing changes on their own. Individuals do make a difference, and the evolution observed is a product of the imagination and intelligence of innovators who see the microcomputer as the tutorial tool of the future.

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